

WHAT IS CLAIMED IS:

1 1. A method for decompressing a compressed data stream whose decoded
2 output comprises lines of two-dimensional data, comprising:

3 receiving a compressed data stream;

4 receiving at least one pointer to a location in the compressed data stream whose
5 decoded output comprises a location on a line of data;

6 receiving decoding information for each received pointer that enables decoding
7 from a point within the compressed data stream addressed by the pointer in one reentry
8 data set;

9 for each received pointer, performing:

10 (i) accessing the location in the compressed data stream addressed by the
11 received pointer; and

12 (ii) using the received decoding information to decode compressed data
13 from the accessed location.

1 2. The method of claim 1, wherein the decoded output comprises image data.

1 3. The method of claim 1, further comprising:

2 buffering the decoded data; and

3 outputting the buffered decoded data.

1 4. The method of claim 3, wherein the buffered decoded data generated
2 comprises a data section having a line width that is less than a line width of the decoded
3 input compressed data stream.

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1 5. The method of claim 1, wherein the received pointer and decoding
2 information are included in a reentry data set.

1 6. The method of claim 5, further comprising:
2 generating the reentry data sets when decoding an input compressed data stream;
3 and
4 outputting an output compressed data stream that comprises the compressed data
5 decoded using the reentry data sets.

1 7. The method of claim 6, wherein the input and output compressed data
2 streams are identical.

1 8. The method of claim 6, wherein the input compressed data stream includes
2 more data than the output compressed data stream.

1 9. The method of claim 6, wherein the reentry data sets are generated by a
2 reentry decoder that decodes the input compressed data stream and passes each reentry
3 data set and the output compressed data stream to a decoder to decode the output
4 compressed data stream using the reentry data sets.

1 10. The method of claim 1, wherein the reentry data sets are generated by an
2 encoder when encoding the compressed data stream.

1 11. The method of claim 1, further comprising using previously decoded data to
2 decode the compressed data stream.

1 12. The method of claim 11, wherein the previously decoded data used to
2 decode the compressed data stream is included in the reentry data sets.

1 13. The method of claim 11, wherein the previously decoded data is generated
2 when decoding the compressed data stream using the reentry data sets.

1 14. The method of claim 13, wherein additional previously decoded data in the
2 reentry data set is also used to decode the compressed data stream.

1 15. The method of claim 11, wherein the decoding information includes
2 probability estimates used to decode the compressed data stream at the location addressed
3 by the pointer.

1 16. The method of claim 15, wherein the data is decoded using an Adaptive Bi-
2 Level Image Compression (ABIC) algorithm.

1 17. The method of claim 11, wherein decoding begins from the location in the
2 compressed data stream addressed by the pointer in a first reentry data set, wherein the
3 first reentry data set further includes all the previously decoded data needed to decode from
4 the pointer in the first reentry data set to generate as output a first line of data.

1 18. The method of claim 17, wherein for each reentry data set following the first
2 reentry data set, further comprising using previously decoded data generated using another
3 reentry data set.

1 19. The method of claim 18, wherein each reentry data set following the first
2 reentry data set further includes previously decoded data to use when decoding from the
3 location in the compressed data stream addressed by the pointer in the reentry data set.

1 20. The method of claim 11, wherein the previously decoded data used to
2 decode the compressed data stream comprises a set of nearest neighbor bit values to the
3 bit value generated by decoding the location in the compressed data stream addressed by
the pointer.

1 21. The method of claim 1, further comprising:
2 receiving multiple pointers to different sections of the compressed data stream and
3 receiving decoding information for each received pointer; and
4 sequentially decoding a portion of each section of the compressed data stream
5 beginning at the location in the compressed data stream addressed by one of the pointers
6 using the decoding information for the pointer.

1 22. A system for decompressing a compressed data stream whose decoded
2 output comprises lines of two-dimensional data, comprising:
3 a computer readable medium including:
4 (i) a compressed data stream;
5 (ii) at least one pointer to a location in the compressed data stream whose
6 decoded output comprises a location on a line of data;
7 (iii) decoding information for each received pointer that enables decoding
8 from a point within the compressed data stream addressed by the pointer in one
9 reentry data set;

10 means for accessing the location in the compressed data stream in the computer
11 readable medium addressed by the received pointer; and
12 means for using the decoding information in the computer readable medium to
13 decode compressed data from the accessed location.

1 23. The system of claim 22, wherein the decoded output comprises image data.

1 24. The system of claim 22, further comprising:
2 means for buffering the decoded data; and
3 means for outputting the buffered decoded data.

1 25. The system of claim 24, wherein the buffered decoded data generated
2 comprises a data section having a line width that is less than a line width of the decoded
3 input compressed data stream.

1 26. The system of claim 22, wherein the computer readable medium further
2 includes reentry data sets, wherein each reentry data set includes one pointer and the
3 decoding information for the pointer.

1 27. The system of claim 26, further comprising:
2 means for generating the reentry data sets when decoding an input compressed data
3 stream; and
4 means for outputting an output compressed data stream that comprises the
5 compressed data decoded using the reentry data sets.

1 28. The system of claim 27, wherein the input and output compressed data
2 streams are identical.

1 29. The system of claim 27, wherein the input compressed data stream includes
2 more data than the output compressed data stream.

1 30. The system of claim 27, further comprising:
2 a reentry decoder for generating the reentry by decoding the input compressed
3 data stream and transmitting each reentry data set and the output compressed data;
4 a decoder for receiving the transmitted reentry data set and decoding the output
5 compressed data stream using the reentry data sets.

1 31. The system of claim 22, further comprising:
2 an encoder for generating the reentry data sets when encoding the compressed data
3 stream.

1 32. The system of claim 22, further comprising means for using previously
2 decoded data to decode the compressed data stream.

1 33. The system of claim 32, wherein the previously decoded data used to
2 decode the compressed data stream is included in the reentry data sets.

1 34. The system of claim 32, wherein the previously decoded data is generated
2 when decoding the compressed data stream using the reentry data sets.

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1 35. The system of claim 34, wherein additional previously decoded data in the
2 reentry data set is also used to decode the compressed data stream.

1 36. The system of claim 32, wherein the decoding information includes
2 probability estimates used to decode the compressed data stream at the location addressed
3 by the pointer.

1 37. The system of claim 32, wherein decoding begins from the location in the
2 compressed data stream addressed by the pointer in a first reentry data set, wherein the
3 first reentry data set further includes all the previously decoded data needed to decode from
4 the pointer in the first reentry data set to generate as output a first line of data.

1 38. The system of claim 37, further comprising means for using previously
2 decoded data generated using another reentry data set for each reentry data set following
3 the first reentry data set, further comprising.

1 39. The system of claim 38, wherein each reentry data set following the first
2 reentry data set further includes previously decoded data to use when decoding from the
3 location in the compressed data stream addressed by the pointer in the reentry data set.

1 40. The method of claim 32, wherein the previously decoded data used to
2 decode the compressed data stream comprises a set of nearest neighbor bit values to the
3 bit value generated by decoding the location in the compressed data stream addressed by
the pointer.

1 41. The method of claim 1, wherein the computer readable medium further
2 concludes multiple pointers to different sections of the compressed data stream and
3 decoding information for each pointer; and
4 means for sequentially decoding a portion of each section of the compressed data
5 stream beginning at the location in the compressed data stream addressed by one of the
points using the decoding information for the pointer.

1 42. An article of manufacture for decompressing a compressed data stream
2 whose decoded output comprises lines of two-dimensional data, wherein the article of
3 manufacture includes program logic performing:
4 receiving a compressed data stream;
5 receiving at least one pointer to a location in the compressed data stream whose
6 decoded output comprises a location on a line of data;
7 receiving decoding information for each received pointer that enables decoding
8 from a point within the compressed data stream addressed by the pointer in one reentry
9 data set;
10 for each received pointer, performing:
11 (i) accessing the location in the compressed data stream addressed by the
12 received pointer; and
13 (ii) using the received decoding information to decode compressed data
14 from the accessed location.

1 43. The article of manufacture of claim 42, wherein the decoded output
2 comprises image data.

1 44. The article of manufacture of claim 42, wherein the program logic further

2 performs:

3 buffering the decoded data; and

4 outputting the buffered decoded data.

1 45. The article of manufacture of claim 44, wherein the buffered decoded data

2 generated comprises a data section having a line width that is less than a line width of the

3 decoded input compressed data stream.

1 46. The article of manufacture of claim 42, wherein the received pointer and

2 decoding information are included in a reentry data set.

1 47. The article of manufacture of claim 46, wherein the program logic further

2 performs:

3 generating the reentry data sets when decoding an input compressed data stream;

4 and

5 outputting an output compressed data stream that comprises the compressed data

6 decoded using the reentry data sets.

1 48. The article of manufacture of claim 47, wherein the input and output

2 compressed data streams are identical.

1 49. The article of manufacture of claim 47, wherein the input compressed data

2 stream includes more data than the output compressed data stream.

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1 50. The article of manufacture of claim 47, wherein the reentry data sets are
2 generated by a reentry decoder that decodes the input compressed data stream and passes
3 each reentry data set and the output compressed data stream to a decoder to decode the
4 output compressed data stream using the reentry data sets.

1 51. The article of manufacture of claim 42, wherein the reentry data sets are
2 generated by an encoder when encoding the compressed data stream.

1 52. The article of manufacture of claim 42, wherein the program logic further
2 performs using previously decoded data to decode the compressed data stream.

1 53. The article of manufacture of claim 52, wherein the previously decoded
2 data used to decode the compressed data stream is included in the reentry data sets.

1 54. The article of manufacture of claim 52, wherein the previously decoded
2 data is generated when decoding the compressed data stream using the reentry data sets.

1 55. The article of manufacture of claim 54, wherein additional previously
2 decoded data in the reentry data set is also used to decode the compressed data stream.

1 56. The article of manufacture of claim 52, wherein the decoding information
2 includes probability estimates used to decode the compressed data stream at the location
3 addressed by the pointer.

1 57. The article of manufacture of claim 56, wherein the data is decoded using
2 an Adaptive Bi-Level Image Compression (ABIC) algorithm.

1 58. The article of manufacture of claim 52, wherein decoding begins from the
2 location in the compressed data stream addressed by the pointer in a first reentry data set,
3 wherein the first reentry data set further includes all the previously decoded data needed to
4 decode from the pointer in the first reentry data set to generate as output a first line of data.

1 59. The article of manufacture of claim 58, wherein for each reentry data set
2 following the first reentry data set, further comprising using previously decoded data
3 generated using another reentry data set.

1 60. The article of manufacture of claim 59, wherein each reentry data set
2 following the first reentry data set further includes previously decoded data to use when
3 decoding from the location in the compressed data stream addressed by the pointer in the
4 reentry data set.

1 61. The article of manufacture of claim 52, wherein the previously decoded
2 data used to decode the compressed data stream comprises a set of nearest neighbor bit
3 values to the bit value generated by decoding the location in the compressed data stream
addressed by the pointer.

1 62. The article of manufacture of claim 42, wherein the program logic further
2 performs:
3 receiving multiple pointers to different sections of the compressed data stream and
4 receiving decoding information for each received pointer; and

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- 5 sequentially decoding a portion of each section of the compressed data stream
- 6 beginning at the location in the compressed data stream addressed by one of the pointers
- 7 using the decoding information for the pointer.